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FAIRNESS AND ACCEPTABILITY OF ENVIRONMENTAL EXTERNALITY PRICING IN EUROPE

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Environmental externality pricing has been long promoted to address environmental problems. The theoretical advantages of this type of strategy in terms of efficiency and effectiveness has however not been sufficient to ensure its widespread adoption in practice. **Environmental externality pricing has indeed faced resistance, in particular for being perceived as unfair, inequitable and/or unacceptable.** This study explores this burning issue, by focusing on climate change mitigation in the European Union (EU). More precisely, it interrogates how the EU has addressed the interrelated issues of acceptability, fairness and equity in a series of measures in this area. These are the **EU emission trading system (ETS)** and three proposals contained in the Fit for 55 Package: the proposed revision of the **EU-ETS**, the revision of the **Energy Taxation Directive (ETD)**, and the introduction of the **EU-CBAM (Carbon Border Adjustment Mechanism)**.

Part 2 of the study provides multi-dimensional analysis of these measures. They are scrutinised according to a common methodology that distinguishes **four dimensions of fairness** - namely; the environmental, economic efficiency, social and developmental, and competitiveness dimensions. The scope of the measure, the price level, and whether phase-in and revenue recycling approaches are incorporated into the scheme are taken into consideration for each measure according to the analytical framework established in Part 1. Based on this approach, we assess how these measures address the four dimensions of fairness, i.e. through which design option and which dimension, if any, predominates over other.

We find that the design of the EU-ETS has increasingly matched environmentally effective and economically efficient purposes. This change has been accompanied by a greater use of revenue recycling options. **The three proposals all seek to balance the four dimensions of fairness** (i.e. environmental, economic efficiency, social/developmental and competitiveness) but they do so in different ways. For instance, the proposal of revision of the ETD and the CBAM proposal do not address revenue recycling, while this question is extensively dealt with in the proposed revision of the EU-ETS. In addition, t**he weight attributed to each dimension differs**. In this sense, the environmental and economic efficiency dimensions play a greater role in the revised EU-ETS than in the other proposals.

By providing a systematic analysis of the aforementioned measures, we seek to bring clarity to the EU climate change policy that can serve to improve the policy making process. This discussion is particularly timely as the three proposals represent key measures in the achievement of EU climate objectives. The current context, in particular the remaining consequences of the COVID pandemic and the Ukraine war, have been putting pressure on EU institutions. Rises in energy and food prices make the adoption of externality pricing policies more difficult to achieve. **The failure to adopt the package, or the adoption of watered-down measures, could put at risk the EU's fulfilment of its obligations under the Paris Agreement.** The study therefore aims to illuminate the strengths and potential of these externality pricing policies. The final Section proposes a series of policy recommendations to this end.

1. **Clarify the meaning of fairness and use it in a consistent way;**
2. **Strengthen funding mechanisms (e.g. ensure that low income households will not be affected by the measures proposed);**
3. **Provide more transparent and systematic justification of differences of treatment between emitters, or review them, and review accordingly if appropriate;**
4. **Provide more transparent and systematic justification of design choices, and review them accordingly if appropriate;**
5. **Reconsider the opportunity of linking the strengthening of EU-ETS to the phase-in of the EU-CBAM;**
6. **Discuss energy and climate policies jointly.**

INTRODUCTION

INTRODUCTION

Our societal model is putting life on earth, including human life, at risk of extinction. Biodiversity is collapsing at alarming rates, concentration of greenhouse gases (GHG) in the atmosphere and of air pollutants keeps on increasing, and chemicals and microplastics are polluting soil, water and animal and human bodies. The crossing of multiple planetary boundaries requires a drastic shift in human relation to nature.[1] Changes in the way we interact with nature are urgently needed. **Public policies can contribute to drive behavioural changes and strive towards a more harmonious relationship with nature.** In search for the 'best' way to address environmental problems, the literature has often (fervently) promoted economic regulations, that is regulations intended to "impose a price or opportunity cost on each unit of pollution, waste, stress, or resource consumption by regulated actors".[2] These include for instance pesticide taxes or taxes on air pollutants, as well as cap-and trade mechanisms.

Our study is concerned with the use of economic regulations for environmental externality pricing, as a response to environmental problems. We seek to analyse this regulatory strategy from the angle of fairness and acceptability, proposing a multi-dimensional framework of analysis towards this end. **Economic regulations have long been promoted to address environmental problems in reason of their theoretical advantages in terms of efficiency and effectiveness compared to other types of regulations such as technology standards.**

This promotion is based on the conclusion in neoclassical economics that economic regulations can be used to capture (or 'internalise') the external costs (or 'negative externalities') resulting from GHG emissions. In the absence of such internalisation, the market does not function optimally, and this comes at a cost to society.

The theoretical advantages of economic regulations in terms of efficiency and effectiveness are often opposed to the possible problems they may raise in terms of fairness and acceptability. **Resistance to economic regulations can be partially attributed to the fact that they are often perceived as unfair, inequitable and/ or unacceptable.** A common ground is that they affect disproportionally poorer households. Other grounds for opposition include government distrust and lack of alternatives. Studies, however, show that the acceptability and (perceived) fairness and equity of economic regulations can be increased through policy-making processes and design strategies, such as clear and transparent communication, stakeholder involvement and revenue recycling.

Many studies have identified ways to address this issue, either through the design of the mechanism itself (eg phase in) or by other means (eg transparency in the process, revenue recycling). There is, however, no magical recipe. The fairness, equity and/ or acceptability of economic regulations depends on contextual particularities and, hence, requires assessment against specific cultural and political **Against this backdrop, this study explores how the effectiveness and efficiency of economic regulations for externality pricing have been reconciled with fairness and acceptability through a series of case studies.**

Our focus is on the European Union (EU) in the area of climate mitigation. We analyse one strategy that has been effectively adopted by the EU, namely the EU emission trading system (EU-ETS) as well as three proposals contained in the recent Fit for 55 Package, notably, the proposed revision of the EU-ETS, and of the Energy Taxation Directive (ETD), and the introduction of the EU-CBAM.[3]

The Fit for 55 Package is part of the EU Green Deal, which aims to "transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use".[4] The EU Green Deal thus places a Just Transition at the heart of EU environmental policy, aiming to ensure that no one is left behind while delivering more ambitious climate and other environmental objectives, such as reducing waste and air pollution.

The future of EU climate mitigation is strongly tied to the fate of the Fit for 55 Package. The failure to adopt the package or the adoption of watered-down measures would lead to delays in emission reductions, putting at risk the EU's fulfilment of its obligations under the Paris Agreement. The successful adoption of the Fit for 55 Package is also imperative if the EU wishes to remain on track to attain binding targets of a 55% reduction of net GHG emissions by 2030 and climate neutrality by 2050, as laid down in the European Climate Law.[5] The current context is nonetheless putting pressure on EU institutions in the achievement of their climate policy. In particular, the COVID pandemic and the Ukraine war have led to a remarkable rise in energy and food prices, rendering pricing policies more sensitive.

The study is divided into three parts. T**he first part provides a literature review regarding the relationship between the effectiveness and efficiency of economic regulations, on the one hand, and their (perceived) acceptability and fairness and equity, on the other hand.** It sets out the theoretical foundations necessary for the rest of the study. In particular, it clarifies the meaning of economic regulations and other interrelated concepts such as environmental taxes and cap-and-trade systems, with a view to scoping the study. Next, it underlines the paradox between the strong promotion of economic regulations as a response to environmental problems and their implementation in practice. Subsequently, it links this matter of fact to the concepts of fairness, equity and acceptability. In the final section, it makes an overview of several legal principles that can influence the design of economic regulations.

The second part of the study is concerned with case studies. It first focuses on EU-ETS, not only as the main economic regulation but also the cornerstone of EU climate policy. Then, it deals with the above-mentioned proposals composing the Fit for 55 Package, i.e. the revision of the EU-ETS, the revision of the ETD, and the introduction of the EU-CBAM. The purpose of the case studies is to determine how and to what extent environmental effectiveness and economic efficiency, on the one hand, and equity, fairness and acceptability considerations, on the other hand, shape the measures under analysis. That is, which one, if any, is predominant; through which design options are these considerations expressed; and finally, which justifications and/or principles are cited to justify design choices. This framework encompasses three dimensions of fairness, namely, the environmental, social/developmental, economic/competitiveness dimensions.

The third part wraps up these findings and draws several policy recommendations, in view of helping to advance the discussions surrounding the Fit for 55 Package.

PART I :

THE PROMOTION OF ECONOMIC REGULATIONS TO REMEDY ENVIRONMENTAL PROBLEMS

PART I - THE PROMOTION OF ECONOMIC REGULATIONS TO REMEDY ENVIRONMENTAL PROBLEMS

The first part of this study is concerned with tensions between the effectiveness and efficiency of economic regulations, on the one hand, and fairness, equity and acceptability, on the other hand. Section 1 clarifies what an economic regulation is and how it can be distinguished from other types of regulatory strategies. Section 2 points out the main arguments behind the promotion of economic regulations. It also emphasises their difficult adoption in practice and underlines the role of fairness, equity and acceptability in this matter. Section 3 specifies the content of these notions, underlining their interconnection but also their vagueness.

1. CONCEPTUAL DISTINCTIONS

Economic vs traditional regulation – In the literature, the terms 'economic instrument', 'economic regulation', 'market-based instrument' and 'economic incentive' are used interchangeably.[6] Economic regulations are intended to "impose a price or opportunity cost on each unit of pollution, waste, stress, or resource consumption by regulated actors".[7] They encompass taxes, tradeable schemes and liability schemes and subsidies. The reference to economic instruments or regulations is often made by opposition to traditional regulations, also denoted as command and control.[8] The latter "specifies required or prohibited conduct for each individual regulated actor with the aim of limiting, directly or indirectly, the level of pollution, stress, or resource consumption by each".[9]

Incentive vs deterrent – Within the category of economic regulations, a line of distinction can be drawn between tax incentives and subsidies, on the one hand, and deterrent instruments, on the other hand. Tax incentives and subsidies financially reward environmentally friendly behaviours, while deterrent instruments, such as taxes, tradeable schemes and liability schemes, discourage environmentally harmful behaviours, by requiring polluters to pay for the harm they cause to the environment.[10] This research concentrates on deterrent instruments.

Pricing vs non-pricing – A second line of distinction within economic regulations orbits around the concept of 'pricing instruments'. Recently, attention has shifted towards the promotion of (explicit) pricing instruments, especially in the context of climate change mitigation.[11] The term pricing is nonetheless confusing. It was previously used to distinguish regulatory instruments in which public authorities set prices and markets determined quantities, from those where public authorities set the quantities and markets determine the price. Under this taxonomy, taxes and liability schemes were enlisted as pricing instruments while pollution trading systems and standards were characterised as quantitative mechanisms. Today, both taxes and pollution trading systems are included in the terms 'pricing instruments'.

Fiscal and non-fiscal – A third line of distinction within economic regulations is between taxes and non-fiscal instruments. A 'tax' can be defined as 'a compulsory, unrequited payment to general government'.[12] A tax is different from pollution trading systems (or cap-and-trade system). Pollution trading systems can be defined as a scheme in which the State determines the level of emission that is allowed and requires firms to return the number of allowances that corresponds to their emission level. Allowances are made tradeable to ensure that emissions are reduced where they are the cheapest.

Taxes, unlike non-fiscal levies, are closely linked to State sovereignty. They are levied by public authorities, often requiring an act of the parliament. While the original purpose of a tax is to collect the necessary revenues to organise life in society, they have also been used as a regulatory and redistributive tool.[13] The fiscal nature of an environmental measure has consequences in law. It leads inter alia to the application of dedicated legal principles in tax matters, such as annuality and legality, or procedural requirements (for instance, EU Treaties require unanimity to enact fiscal legislation).[14] The characterisation as a tax can also influence competence allocation among public authorities.

Relationship to the environment – Regulatory strategies can also be distinguished based on their relationship to the environment and/or the type of environmental problem addressed.

The terms 'green tax', 'environmental tax', 'eco-tax', 'environmentally related tax' or 'Pigouvian tax' are often used to refer to taxes that are somehow related to the environment or environmental protection.[15]

There is nevertheless no univocal definition of these concepts. Environmental taxes are defined by reference either to their objective (environmental protection), their tax base (something that has a negative impact on the environment), or both.[16]

Green tax – In this research, we define the concept of green tax broadly as a tax that is aimed at improving environmental quality. This includes both taxes that are based on something that has a negative impact on the environment (e.g. CO2 tax) or relates to it (e.g. motor vehicle tax differentiating on the basis of vehicle CO2 emissions or air pollution).[17]

Table 1. Eurostat environmental tax bases (Statistical tax guide 2013)

Energy (including fuel for transport)	Resources
• Energy products for transport purposes (e.g. petrol, diesel, LPG, natural gas, kerosene) • Energy products for stationary purposes (e.g. light & heavy heating oil, natural gas, coal, electricity) • Greenhouse gases	• Water abstraction • Harvesting of biological resources (e.g. timber, hunted and fished species) • Extraction of raw materials (e.g. minerals, oil and gas) • Landscape changes and cutting of trees
Transport (excluding fuel for transport)	**Pollution**
• Motor vehicles import or sale (one-off taxes) • Registration or use of motor vehicles, recurrent (e.g. yearly taxes) • Road use (e.g. motorway taxes) • Congestion charges and city tolls • Other means of transport (ships, airplanes, railways, etc.) • Flights and flight tickets • Vehicle insurance (excludes general insurance taxes)	• Measured or estimated emissions to air (e.g. NOx and SOx emissions) • Ozone-depleting substances (e.g. CFCs or halons) • Measured or estimated effluents to water • Non-point sources of water pollution (e.g. pesticides, fertilisers) • Waste management • Collection, treatment or disposal; individual products (e.g. packaging, beverage containers, batteries, tyres, lubricants) • Noise (e.g. aircraft take-off and landings)

Typology of environmental problems – Taxes and other economic regulations can address a variety of environmental problems. The nature of the problem addressed will have an influence on the design of the scheme, for example, on the scope (which pollutant or polluting activities they regulate) as well as on the price level. For instance, a pesticide tax will dramatically differ from a carbon tax or a tax on plastic bags or noise.[18] Table 1 shows the Eurostat's classification of environmental taxes depending on their tax base (energy, resources, transport and pollution) made by Eurostat for statistical purposes.[19]

2. THE GAP BETWEEN THEORY AND PRACTICE

A widespread promotion - Scholars, international organisations and NGOs have actively promoted the use of economic regulations to fill the gap of traditional regulations. The main reasons are the following.

Firstly, it is commonly advanced that economic regulations are more environmentally effective and economically efficient to address environmental problems than other regulatory strategies. As the OECD highlights, "By putting a price on pollution, taxes and tradable permit systems incentivise emissions abatement at the lowest possible cost", which refers to the cost-effectiveness argument.[20] An efficient policy maximises the net social benefits for society, that is, maximises the social benefits minus the social costs.[21] Cost-effectiveness, on the other hand, means achieving a policy goal at the lowest social cost. It is a necessary, yet insufficient, condition for economic efficiency.

A second line of argument is that economic regulations provide more flexibility as to the quantity of pollution abated and/or the way to reduce pollution.[22] In addition, it is argued they spur technological innovation.[23] Another merit attributed to economic regulations is that they involve a more limited role of the State compared to the markets, which is viewed positively from a governance perspective.[24] Finally, economic instruments can also raise revenue (save in the case of subsidies), which has been a central argument in the context of the COVID recovery.[25]

But a difficult implementation in practice – Looking at the broad picture, there is a gap between theory and practice. Environmental externalities are far from being fully internalised in the EU.[26]

At the EU level, the Court of Auditors has found that while the polluter pays principle underlies the main legislative acts of EU environmental policy (including the industrial emissions directive, the waste & water frameworks and the environmental liability directives), this principle is not fully implemented. The implementation of the polluter pays principle deeply varies across the different types of environmental problems. For instance, unlike water and air pollution, soil pollution is not addressed by the EU. Similar conclusions have been reached as regards Member States' legislation.[27]

The penetration of economic regulations to address environmental problems remains relatively low compared to other regulatory strategies, such as standards or labels. Economic instruments tend to face fierce opposition in practice from the public, or from industrial lobbyists.[28] This has made policymakers prefer other options or less effective/efficient designs. The Yellow Jackets are a well-known example of such an opposition. Demonstrations in the streets of France's main cities have ultimately led to the freezing of the French carbon tax's increasing rate trajectory. In the same vein, industry lobbyism has been pointed out as a key factor in the widespread use of free allowances under the EU-ETS.[29]

Yet successful examples of reform exist – Nevertheless, successful examples of economic regulations addressing environmental problems do exist in practice.[30] To put it another way, the ill-fated story of economic regulations in practice is not inescapable. In this respect, the IEEP has highlighted 40 cases of successful tax reforms in the EU. [31] This includes the Swedish NOx tax, Denmark's pesticide tax, Hungarian air pollution tax and France's incentive charging for waste. The Swedish carbon tax is also often denoted as a success story given its high rate and relatively broad coverage.

3. FAIRNESS, EQUITY AND ACCEPTABILITY

The relatively low penetration of economic regulations in environmental policies and their design, which is only rarely appropriate to deliver meaningful environmental benefits, has much to do with their acceptability among interest groups, and their perceived fairness and equity. In this Section, we first provide some conceptual distinctions of the concepts of fairness, equity and acceptability (Sub-Section 3.1).

Next, Sub-Section 3.2 presents the main ways advanced in the literature to improve the fairness, equity and acceptability of economic regulations. Subsequently, Sub-Section 3.3 points out several legal principles that influence the balance between effectiveness and efficiency, on the one hand, and equity, fairness and acceptability, on the other hand. Finally, Sub-Section 3.4 proposes a taxonomy of the different facets of fairness and equity.

3.1 Conceptual distinctions

Acceptability – Acceptability is a key driver of successful environmental policies. Perceptions play a central role in the acceptance of a scheme even when these perceptions are wrong.[32] Several factors of opposition to the use of economic regulations are pointed out in the literature.

Carattini et al. single out four main causes of public opposition to carbon taxes: the (perceived) disproportion of the burden compared to subsidies, the belief that a carbon tax is ineffective to reduce GHG emissions and that it will be used to raise revenues, as well as government distrust.[33] Similarly, Kallbekkenn & Sælen find that beliefs about environmental consequences and about consequences to others influence the acceptability of environmental taxes. While self-interest plays a more minor role,[34] it is a main driver of industry lobbyism to attempt to change the content of regulations to their advantage.[35]

The type of instrument used can also be relevant in defining the acceptability of a scheme. Several studies underline that pricing instruments are more prone to the opposition because they make the cost incurred more salient.[36] Cognitive bias tends to make people ignore the hidden costs of subsidies or traditional regulations.[37] There is also a tendency for tax aversion, which makes taxes less politically feasible than emission trading systems.[38]

Interconnection between acceptability, fairness and equity - Acceptability is interconnected with fairness and equity. Authors have found that a positive relationship exists between progressivity and acceptability.[39] The (perceived) unfairness of a scheme can lead to public opposition, although the fairness and equity of a scheme do not guarantee its acceptability.

Vagueness and subjectivity of these concepts - Determining what is a fair, equitable and acceptable policy entails an element of subjectivity. People have different perceptions of what is fair, equitable or acceptable.[40] Fairness, equity and acceptability are interrelated. They also interlink with other concepts. As Bubna-Litic & Chalifour note, "notions of what is fair are intricately linked with related concepts of justice, equality, ethics, and morality".[41]

Therefore, it is not surprising that different typologies of fairness/equity exist in the literature. For instance, Hsu characterises fairness as the equal distribution of burdens and benefits (how parties are treated by environmental law), fairness as avoiding retroactive regulation, and fairness in the redistributive sense.[42] Pirlot, discussing specifically tax fairness at the EU level distinguishes fair trade, including internal market, level playing field and fair–unfair tax competition) and fair taxation (i.e. sufficient public revenue and social fairness).

Equity and fairness – Equity and fairness are often mentioned together, without being systematically distinguished. Some authors view equity as a necessary criterion for fairness, while others define equity as the "fair distribution of costs".[43]

Equity can be approached by studying the distributional impacts of the policy in question (e.g. among households). It should nonetheless be noted that all environmental policies have distributional impacts; as Faure points out, "Environmental policies, especially effective policies, change the strategic behaviour of certain parties, but the consequence of those changes can have serious distributional effects, often on other smaller or weaker parties".[44]

Equality - Equity is deeply related to equality. Equality is a central legal principle in modern society that is recognised both at the international and national levels. Formal equality embeds that comparable situations should in principle be treated in the same way, unless there is an objective justification for differentiation. By contrast, substantive equality, as Cullet notes, "can only be brought about if existing inequalities, such as inequalities in wealth or natural endowments, are acknowledged and taken into account".[45] Therefore, equity and substantive equality can justify differentiation in treatment, such as on the basis of financial capabilities.

3.2 Design implications

The literature identifies different solutions to enhance equity, fairness and acceptability of economic regulations (Box 1).[46;47] This can be done in two main ways: ex ante, by modifying the design of the scheme itself or ex post through complementary policies. In addition, stakeholder engagement in the process can positively affect the acceptability of the schemes and their (perceived) fairness/equity.

Three main options are generally advanced to increase the acceptability of the schemes and their (perceived) equity and fairness. The different options score differently according to the four dimensions of fairness described above, and in terms of acceptability, as summarised in Table 2. Some of the options can be combined, while some exclude the others. It should be noted that it is not possible to rank the different options in the abstract, as contextual particularities can have an influence on their effectiveness to improve the acceptability, fairness and/or equity of economic regulations.

Table 2. Design options to increase fairness, equity and acceptability of economic regulations

	Environmental	Economic efficiency	Social/ developmental	Competitiveness
Derogations-reliefs	-	-	+ (but - insofar as it reduces environmental effectiveness)	- insofar as it leads to competitive advantages but + if limits competitive distortion
Phase-in	-	-	+ (but - insofar as it reduces environmental effectiveness)	+ insofar as it allows firms time to adapt
Revenue recycling	+	+	+ but may not be sufficient depending on vision of fairness	+ but may not be sufficient

The derogations/relief – A first possibility is to introduce reliefs/derogations to the pricing mechanism. This can be done inter alia through exemptions from the scope, tax reductions, rates differentiation or free allocation of allowances in the case of a cap-and-trade system. The use of thresholds, such as a tax levied from a certain level of consumption, is another way to address this issue.

This first option will reduce the effectiveness and/or the efficiency of the scheme. To be environmentally effective and economically efficient, the scheme should indeed cover all pollutants and polluting activities should be targeted as accurately as possible.[48] The scope should be as broad as the environmental damage[49] and the price level should be commensurate with the environmental damage.[50]

In addition, abating pollution at the lowest possible cost (or cost-effectiveness) requires equalising marginal pollution costs among different polluters. To ensure economic efficiency, all units of pollution should be priced at the level that corresponds to their marginal external cost, i.e. the cost imposed on society for an additional unit of pollution.

Finally, reliefs and derogations may be perceived as unfair by interest groups that do not benefit from them. They can also lead to distortions of competition if they favour firms or sectors over their competitors. Therefore, the importance of reviewing the opportunity for such relieves and derogations is underscored in the literature.

Phase-in - A gradual phase-in of the scheme represents a second option to increase the acceptability, equity and/or fairness of economic regulations.[51] Gradual phase-in can take the form of an increasing price trajectory or gradual expansion of the scope. The need to ensure the predictability of possible changes over time is underlined by several contributions. Phasing the scheme in raises similar issues as option 1. In addition, authors warn against the risk of status quo, with announced changes failing to be implemented. It can be viewed as positive from the perspective of competition because it leaves time for firms to adapt, but could lead to distortions if it discriminates undertakings.

Box 1. OECD. (2011) *Taxation, Innovation and the Environment*.

How to design environmental taxes?

- Environmental tax bases should be targeted to the pollutant or polluting behaviour, with few (if any) exceptions.
- The scope of an environmental tax should ideally be as broad as the scope of the environmental damage.
- The tax rate should be commensurate with the environmental damage.
- The tax must be credible and its rate predictable in order to motivate environmental improvements.
- Environmental tax revenues can assist fiscal consolidation or help to reduce other taxes.
- Distributional impacts can, and generally should, be addressed through other policy instruments.
- Competitiveness concerns need to be carefully assessed; coordination and transitional relief can be effective responses.
- Clear communication is critical to public acceptance of environmental taxation.
- Environmental taxes may need to be combined with other policy instruments to address certain issues.

Revenues recycling – Another option that is widely promoted is to recycle revenues instead of introducing reliefs to polluters.[52] This approach addresses the acceptability of the scheme and ensures fairness/equity ex post, as opposed to ex ante. It generally scores better in guaranteeing the effectiveness and efficiency of the scheme. By contrast, whether this option is considered fair or more equitable/acceptable than others is context-dependent. In the same vein, revenue recycling may not be sufficient to address possible distortions of competition resulting from environmental measures and can even be distortive if it targets some firms or sectors.

There are different ways to redistribute revenues. Revenues can be recycled to finance environmental policies, to compensate (poorer) households or to reduce income taxes (tax shift). Carattini et al. find that redistributing revenues for environmental purposes is the most popular option among citizens.[53] Compensating low-income households is the second most popular option, while tax shifts are the least popular. In the same vein, Klenert et al. find that uniform and targeted transfers are found more acceptable than other options.[54]

Civil society engagement - Civil society engagement plays a key role in building support for economic regulations.[55] This is particularly the case at two moments of the policy-making process: the problem recognition and policy formulation phase and the decision-making phase.

Clear and transparent communication - Relatedly, it is often recommended to communicate clearly and transparently about the introduction of the scheme, its positive impacts and the use of revenues.[56] Fostering dialogue among stakeholders is also an important factor.

Earmarking - A complementary strategy that is popular in the literature is to earmark revenues, that is to 'lock' them in a dedicated fund, instead of placing them in general spending.[57] This can increase the perception of transparency and trust in the environmental purpose of the pricing mechanism.

3.3 Legal principles shaping economic regulations

Economic regulations do not take place in a legal vacuum. Legal systems establish principles and recognise rights that may shape environmental policies. They contribute to defining how to distribute rights and responsibilities, in particular, what pollution level is acceptable, as well as who should reduce pollution and/or bear its costs. In some cases, these rules will lead to concrete obligations, while in others, they will be a source of inspiration for policy-makers.

Polluter pays principle – The first principle is the polluter pays principle. This principle means that "the costs of pollution should be borne by the person responsible for causing the pollution".[58] It is recognised at the international level and has been enshrined in the EU Treaties and in the constitutional laws of many Member States. It is also argued that the polluter pays principle leads to fair results by distributing costs proportionally to pollution.[59] According to this reading, it is unfair to burden society as a whole with the cost of environmental damages for which it is not responsible.[60] The polluter pays principle is also linked to fair trade, as it seeks to prevent the granting of State aid to some firms to finance antipollution investments.

While the main function of the polluter pays principle is external cost internalisation, this principle is also attributed to other functions.[61] To some extent, these other functions shape environmental policies in a way that deviates from a purely economic logic of external cost internalisation. For instance, the polluter pays principle can have a preventive function, whereby environmental harm is prevented since the principle calls for a higher price on pollution than that of external costs. Nevertheless, the polluter pays principle hardly prescribes a strict design of environmental policies. Lawmakers generally have a broad margin of appreciation to define the polluters, how much they should pay and what to do with the revenue, insofar they respect the principle of proportionality.

Sustainable development – This principle was defined by the Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".[62] As Philippe Sands notes, this definition entails two dimensions "(1) the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and (2) the idea of limitations imposed, by the state of technology and social organisation, on the environment's ability to meet present and future needs".[63] This principle is directly integrated into EU primary law as well as in the constitutions of many Member States.

Several facets of sustainable development can be distinguished: intergenerational equity (preserving resources for future generations), sustainable use (using resources sustainably), equitable use or intragenerational equity (taking into account the needs of others) and the principle of integration, "the need to ensure that environmental considerations are integrated into economic and other development plans, programmes and projects, and that development needs are taken into account in applying environmental objectives".[64]

While the principle of sustainable development requires attention to environmental, economic and social concerns, as well as the needs of present and future generations,[65] its vagueness makes it difficult to be concretely implemented.[66] It is arguable that the principle of sustainable development corrects "a strict economic reasoning which would argue that there is little reason to invest today to protect future generations".[67] In the context of climate change, sustainable development has led to a distribution of emission reduction efforts that acknowledges the rights of the State to develop, and hence has led to differentiation among developed and developing countries.

Fundamental rights – Fundamental rights are playing an increased role in the definition of environmental policies. They contribute to defining which level of pollution is acceptable. Access to a clean, healthy and sustainable environment is recognised by the UN General Assembly resolution of July 2022 as a human right.[68] Many human rights treaties such as the European Convention on Human Rights (ECHR) and the European Charter of Fundamental Rights (ECFR)[69] state that environmental degradation, and the failure to protect the environment, can constitute a violation of human rights such as the right to life or to private life.[70] In the EU, the Treaties require a high level of environmental protection, which may thus be higher than what economic efficiency implies.[71]

There is a growing wave of environmental litigation based on human rights globally. Human rights have been successfully invoked in cases relating to climate change.[72] In a recent judgement, the Brazilian Supreme Court ruled that the Paris Agreement is a human rights treaty.[73] Human rights do not only protect present generations of adults; a rising number of environmental litigations, especially in relation to climate change, are brought by minors.[74] Other significant rights in the context of environmental degradation are the intertwined rights to equal treatment and non-discrimination. Exposure to pollution often disproportionally impacts certain groups of the population such as elderly people, women or children, whose rights are protected by specific non-discrimination provisions and treaties.[75]

One possible human rights-centred approach to distribute pollution reduction efforts is per capita. That is, all polluters should be allowed to emit the same amount of pollution, for example, each individual is allowed to emit 2 tonnes of GHG per year. To some extent, this matches with the conclusion of the European Court of Justice that "all the different sources of greenhouse gas emissions relating to economic activities are in principle in a comparable situation".[76] Nevertheless, this approach does not take into account the fact that polluters may be in different socio-economic situations, and hence may deepen inequalities. In this sense, a constant message of the OHCR is that climate mitigation "should not exacerbate inequalities within or between States", such as against indigenous communities, children, women or elderly people.[77]

Ability to pay – Many tax systems, including in the EU, are based on individual taxpayers' ability to pay, or taxable capacity.[78] While EU Treaties do not explicitly mention this principle, it is recognised in many constitutions of its Member States such as Italy and France.[79] Fairness in this context means that taxpayers who earn a higher income or are wealthier find themselves in a better position to contribute to the State's budget. The precise contours of the ability to pay principle are elusive, however. An individual taxpayer's ability to pay can be identified in different ways such as on the basis of their property or wealth, but also on their potential ability to earn income and accumulate wealth.[80]

While the ability to pay principle is not a principle of environmental law, it is relevant insofar as taxes are used to ensure environmental protection. The existence of tension between the ability to pay principle and the polluter pays principle has been underlined by legal scholars.[81] Taxes levied on the basis of the polluter pays principle have been challenged for some time for being at odds with the ability to pay principle. For that reason, the legality of environmental taxes was doubted for some time; but today, it is generally admitted that they can be lawfully enacted.[82]

Free and undistorted trade – Many international treaties are aimed at ensuring the free movement of goods, services, capital and firms/citizens, as well as to guarantee that competition is undistorted (e.g. WTO law). The EU was constructed on these premises. It is relatively frequent that the EU Commission uses the term 'fair' with reference to undistorted competition within the internal market, e.g. with respect to double taxation.[83] Free movement and competition rules have shaped national legislation in the absence of harmonisation and have justified EU environmental policies for some time, in the absence of a dedicated environmental competence. Today, however, EU environmental policy is no longer subordinated to the internal market.

3.4 Taxonomising fairness & relation to the design

Traditionally, two dimensions of fairness are distinguished: procedural fairness, which is centred on who is engaged in the policy-making process, and distributive fairness, which is focused on the distribution of costs and benefits of environmental policies.

The fairness and/or equity of public policies can be assessed at different levels: inter-country (internationally or regionally, e.g. intra-EU), intra-country (between citizens or groups of citizens, in light of differences in terms of income, race or ethnic background, gender or community), and intergenerational, that is a fair distribution between age groups and present and future generations.[84]

In this research, we distinguish distributive fairness according to four dimensions: environmental, economic efficiency, social and developmental, and competitiveness. This taxonomy is based on the legal principles identified in Sub-Section 3.3 and on the literature review.

The four dimensions above sometimes converge and at other times diverge in the way they respond to the following questions: what should be the level of pollution, how efforts of pollution reduction should be distributed, how contributions to public revenue should be distributed, how should revenue collected to be redistributed.[85] The responses to these questions vary significantly depending on the dimension scrutinised, as presented in Table 3.

These diverging responses can be reconciled to a certain extent. For instance, collecting revenue in proportion to the environmental damage can be progressive.[86] It is not infrequent that heavier polluters correspond to higher categories of income or to States with a higher GDP. Making polluters pay can thus be a way to ensure that the most well-off contribute more to the revenue collected. This in turn enables a redistribution of income.[87]

Table 3. Dimensions of fairness & design of economic regulations

	Environmental	Economic efficiency	Social/ developmental	Competitiveness
Pollution level	Pollution eradication	Efficient level	Level that addresses inequalities from exposure/capacity to cope with environmental harm, including that of future generations	Competitive neutrality
Distribution of efforts	Pollution level	Abatement cost	Capabilities	
Collection of revenues	Environmental damage	Ability to pay/ progressivity		
Redistribution of revenues	Environmental investments	Capital or corporate tax reductions Tax shift & uniform transfers (if tax system is non-optimal)	Targeted transfers to households Tax shift (if tax system is non-optimal)	

PART II :

CROSS-CASE COMPARISONS, ECONOMIC REGULATIONS IN THE EU

PART 2 – CROSS-CASE COMPARISONS, ECONOMIC REGULATIONS IN THE EU

The purpose of this second part is to study how the EU has balanced environmental effectiveness and economic efficiency of economic regulations, on the one hand, and fairness, equity and acceptability, on the other hand. We first set out the general context in which economic regulations take place, by providing a brief overview of EU climate law and policy. After studying the EU-ETS, we turn to legislative proposals encompassed in the Fit for 55 Package that aim to price externalities from GHG emissions. We clarify the general context and objectives of each of these measures, then scrutinise their design in light of the analytical framework developed in the previous section, with a focus on their scope, the price level, the use of a phase-in and of revenue recycling.

4. GENERAL CONTEXT: EU CLIMATE POLICY & LAW

A fragmented and complex framework - Carbon pricing mechanisms in the EU have taken place in a remarkably complex framework, the content and architecture of which has evolved over time. EU climate policy and law have a two-pronged dimension: climate mitigation and energy, which consist of distinct yet intertwined fields. Climate mitigation is itself divided into three pillars depending on the sectors involved: ETS sectors, effort sharing sectors (e.g. waste, buildings and shipping) and land use, land use change and forestry (LULUCF) sectors.

EU climate policy and law is particularly fragmented, despite the recent adoption of the aforementioned European Climate Law (Regulation 2021/1119). We see in Table 4 below that different areas of EU climate policy have different targets, distributed among Member States and firms according to different principles, such as cost-effectiveness and economic efficiency in ETS sectors, and solidarity and fairness in effort-sharing sectors. An increasingly ambitious, yet uneven framework – Over time, the ambition of EU climate law and policy has increased. The Council politically endorsed the objective of attaining climate neutrality (not net GHG emissions) in 2050 and reducing net GHG emissions by at least 55% compared to 1990 levels by 2030.[88] These objectives became legally binding thanks to the adoption of the European Climate Law (Regulation 2021/1119).

The European Climate law makes it clear that all sectors of the economy should play a role in contributing to the achievement of climate neutrality, but admits that these contributions can be differentiated.[89] Yet, regulation of GHG emissions by the EU is uneven across the different (sub)-sectors and lacking in some cases (e.g. agriculture). There is a clear need to adapt the existing framework, which underlines the importance of the Fit for 55 Package under study.

Increased but insufficient level of coherence – The European Climate Law provides more coherence across the different pillars (even though it has the same rank as other pieces of legislation). The achievement of climate neutrality is governed by two principles: promoting fairness and solidarity among Member States, while guaranteeing cost-effectiveness. Fairness and solidarity are not defined by the regulation. In addition, it is not specified how these partially contradictory objectives are to be reconciled. In the same vein, the European Climate Law has clarified the objectives to be considered in the 2040 intermediary target, including security of energy supply, fairness, cost-effectiveness, competitiveness, and biodiversity. However, it does not rank these objectives.

Table 4. EU climate legal framework architecture with examples of implementing measures

<table>
<tr><td rowspan="3"></td><td colspan="3">Climate</td><td colspan="2">Energy</td></tr>
<tr><td colspan="5">European Climate Law Regulation 2021/1119
Energy and Climate Governance Regulation 2018/1999</td></tr>
<tr><td>ETS</td><td>ESR sectors</td><td>LULUCF</td><td>Renewable energy</td><td>Energy Efficiency</td></tr>
<tr><td rowspan="2">Target</td><td colspan="3">55% net GHG emission reduction by 2030
Net zero by 2050</td><td rowspan="2">EU-wide at least 40% renewable by 2030</td><td rowspan="2">EU-Wide improvement energy efficiency at least 36-29% by 2030</td></tr>
<tr><td>60% reduction by 2030, from 2005</td><td>40% reduction by 2030, from 2005
60% by 2050</td><td>No debit</td></tr>
<tr><td>Main distribution criteria</td><td>Cost-effectiveness & economic efficiency</td><td>Solidarity & fairness
MS autonomy</td><td>Same rule for all MS</td><td>MS autonomy</td><td>MS autonomy</td></tr>
<tr><td rowspan="5">Implementing measures</td><td rowspan="2">ETS Directive (last amended by Directive 2018/410)</td><td>Effort Sharing Regulation 2018/842</td><td rowspan="4">LULUCF Regulation 2018/841</td><td rowspan="4">Renewable energy Directive (EU) 2018/2001</td><td rowspan="4">Energy Efficiency Directive (EU) 2018/2002</td></tr>
<tr><td>Regulation 2019/631 (CO2 emission standard for LDV)</td></tr>
<tr><td rowspan="2">IED</td><td>Regulation 2019/1242 (CO2 standard for HDV)</td></tr>
<tr><td>Directive 2022/362 on road pricing</td></tr>
<tr><td colspan="5">Taxonomy Regulation 2020/852</td></tr>
</table>

In a similar vein, the Energy Governance Regulation (2018/1999) intends to create more coherence between the energy and climate dimensions of EU policy, by integrating climate consideration more deeply into energy law and policy.[90] It does so inter alia through structures for planning, reporting and reviewing of climate and energy policy (so-called integrated national energy and climate plans).[91] These acts must integrate the five dimensions of energy policy, i.e. energy security, internal energy market, energy efficiency, decarbonisation, and research, innovation and competitiveness.[92] Nevertheless, it is up to the Member States to determine their energy efficiency and renewable energy targets. The Regulation leaves them with the discretion to decide how to balance the five objectives above.

The relatively low penetration of economic regulations - While the idea of using economic regulations to address climate change has been considered by the EU since the 1990s, the adoption of these strategies has faced resistance. Despite its advocacy efforts[93], the Commission failed multiple times to introduce other economic regulations (e.g. 1992 and 2011 proposals for a carbon and energy tax and 2005 proposal on passenger-car related taxes).[94]

In the aftermath of the Kyoto Protocol, the Commission made a proposal to introduce an ETS to reduce GHG emissions from the main industrial installations, which led to Directive 2003/87/EC (hereinafter ETS Directive).[95] Since its adoption, the ETS Directive has been amended a couple of times, the last modification in date being made by Directive 2018/410.[96]

More recently, the EU adopted the Directive 2022/362 amending Directives 1999/62/EC, 1999/37/EC and (EU) 2019/520, as regards the charging of vehicles for the use of certain infrastructure.[97] This directive complements existing legislation regarding road transport, in particular CO2 emission performance standards and fuel quality standards.

5. THE EU-ETS

5.1 The ETS Directive

General context & objectives – The EU-ETS was introduced in 2003 and entered into force in 2005.[98] It was the result of a formal multi-stakeholder consultation process, launched by the 2000 Green Paper.[99] The purpose of this process was to gather opinions from stakeholders so as to "strike the right balance in the use of emissions trading".[100] US experts also had an influence on the conceptualisation of the EU-ETS.[101]

Article 1 of the ETS Directive establishes that the EU-ETS aims "to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner", which is reminiscent of the economic efficiency dimension of fairness. It sought to balance simplicity, effectiveness, subsidiarity and transparency, as well as to guarantee the proper functioning of the internal market.[102]

Scope – The scope of the EU-ETS was defined according to a stepwise approach; it was initially limited to CO2 emissions from industrial installations such as cement companies and power generators and was then expanded to other gases and sectors.[103] The determination of the scope was based on two criteria: first, the coverage of the installations by existing regulation of industrial pollution (the IPPC Directive) and second, practical considerations including administrative burdens as well as the capability of gases to be accurately monitored.[104]

The limited coverage of the EU-ETS limited its environmental effectiveness and economic efficiency. In addition, the determination of the scope led to competition issues. It was not related to competition and as such, some undertakings were covered by the scheme while their competitors were not, which led to litigation.[105]

As regards the social–developmental dimension, the exclusion of certain sectors such as buildings and road transport can be appraised positively, in light of the risk of burdening low-income households/ countries. On the other hand, these limitations can be considered negative if one takes into consideration that low-income households are also the most affected by climate change.

Price level – While the allowance price was the same for all installations within EU territory, the functioning of the EU-ETS was largely decentralised. Member States were in charge of determining the emission cap and how to allocate allowances among firms, under the supervision of the Commission. The choice to follow a decentralised approach was justified by the principle of subsidiarity, as well as the goal of ensuring fairness and solidarity among Member States.[106]

The decentralised approach of the EU-ETS led to distortions of competition and harmed the environmental effectiveness of the scheme. The overall ambition of the scheme was limited, as Member States tended to over-allocate allowances. The price of the EU-ETS was low and hence did not guarantee the environmental effectiveness and efficiency of the scheme.

Some sectors which received allowances for free were able to pass the cost through the market value of allowance and thus make undue profit. In addition, allowances were mostly allocated for free. This reflected the fact that emission reduction efforts were redistributed to reflect solidarity among Member States.[107] However, this did not make polluters pay and lead to a progressive distribution of revenues. Free allocation also responded to competitiveness considerations: in the absence of a global carbon price, auctioning allowances would harm EU firms' competitiveness and create the potential for carbon leakage.

Phase-in - The EU-ETS was introduced in different stages, based on a learning-by-doing approach. This responded to the objective of guaranteeing the proper functioning of the EU-ETS and hence its efficiency and effectiveness. Phase-in can also be viewed as positive from the perspective of competition because a badly functioning scheme would have risked harming competition.

Revenue recycling – The issue of revenue recycling was irrelevant because of the free allocation of allowances.

Table 5. Fairness dimensions in ETS Directive

	Environmental	Economic efficiency	Social/ developmental	Competitiveness
Scope	-	-	+/-	-
Price level	-	-	-	-
Phase-in	-/+	-/+	+/-	+
Revenue recycling	Irrelevant because free allocation			

5.2 The Aviation and the Revised ETS Directives

General context & objectives – In 2008, the Aviation Directive originally broadened the scope of the EU-ETS to all national, intra-EU and international flights, before being watered down.[108] In 2009, amid the problems encountered during the first phases, the EU reshaped the design of the EU-ETS.[109] These changes were part of a broader package of measures (the so-called 20-20-20 Package), which introduced a series of measures (such as the renewable energy directive) to reduce emissions, increase the share of renewables and improve energy efficiency by 2020.[110] After that, several changes were made to improve the price signal of the EU-ETS (including through the market stability reserve), so as to deliver GHG emission reductions that are consistent with the Paris Agreement.

Scope – Both the Aviation Directive and the Revised ETS Directive expanded the scope of the EU-ETS. The coverage of aviation activities originally concerned all flights, both intra- and extra-EU flights. The legality of including international flights was challenged before the CJEU but ultimately validated.[111] However, the pressure from third countries and airline operators led to the retroactive exemption of non-EEA flights.

The Revised ETS Directive led to the expansion of the coverage of the EU-ETS both to new industrial sectors (petrochemicals, non-ferrous metal, chemicals)[112] and to new categories of GHGs (i.e. N2O emissions and perfluorocarbons).[113] It is the capacity of emissions to be monitored, reported and verified with a sufficient level of accuracy that justified their inclusion in the EU-ETS.[114]

The increased coverage of the EU-ETS increased its overall environmental effectiveness and efficiency. The criteria used to define the scope show that the effective functioning of the scheme is considered. Nevertheless, the scope of this scheme has remained limited. It has covered approximately 10000 energy-intensive installations and 500 aircraft operators, representing 41% of the EU's GHG emissions. The conclusions made concerning EU-ETS Directive as regards the social/developmental dimension are applicable in the revised ETS Directive. The revision of the scope of the EU-ETS partially addressed some of the competition problems mentioned previously.

Price level – The Revised ETS Directive has centralised the organisation of the EU-ETS, by setting a common cap and common rules to allocate allowances. It has also led to a gradual shift towards auctioning.

Under the revised ETS Directive, industrial installations have been classified into three categories: installations at risk of carbon leakage (free allocation), the power sector and carbon capture and storage sector (full auctioning), and then other sectors (gradually subject to auctioning).[115] These categories are based on emitters' ability to pass costs on to consumers and, in the case of installations at risk of carbon leakage, on production cost increases due to the ETS and on trade intensity with third countries.[116]

Sectors that are not exposed to (genuine) risk of carbon leakage and that are not power generators and carbon capture and storage facilities are attributed allowances on the basis of product benchmarks.[117] This rewards the most CO2 efficient installations in a sector or subsector.[118] The regime applicable to aircraft operators has differed from that of industrial installations without explicit justification.[119]

Both the move towards auctioning and the centralisation of the EU-ETS increased the environmental effectiveness and efficiency of the EU-ETS. However, the price of allowances has generally been volatile and has been historically low in recent times.[120] This has prevented the EU-ETS from providing strong price signals and as such initiating notable changes in industries. The number of free allowances remains high. The carbon leakage list identifies 63 sectors and subsectors, which cover about 94% of industrial emissions.[121] It is a highly criticised element of the design of the EU-ETS among stakeholders.[122]

The allocation of free allowances to firms at risk of carbon leakage can be seen as positive from the point of view of competitiveness.

Centralisation also helps reduce distortions in the internal market. From the point of view of social-developmental fairness, free allocation of allowances is negative as it prevents some polluters from being held responsible for the harm they cause. The amounts involved have been considerable. In total, about 10.4 billion free allowances have been granted since the operation of the EU-ETS, representing more than €138 billion.[123] On the other side, centralisation of the EU-ETS impacts certain Member States more, especially coal-dependent ones, which also happen to have a lower GDP.

The distinct – and to some extent more favourable treatment - of aviation raises questions from the point of view of environmental effectiveness, economic efficiency, and social–developmental fairness. The lack of transparency as regards to the justification of such a difference in treatment also poses a problem from a legal standpoint.[124]

Phase-in – The cap on emissions has been reduced over time. This creates scarcity in the market and implies that the price level of the EU-ETS should increase over time. The cap was originally reduced by 1.74% annually in order to attain a total emission reduction of 21% compared to 2005 by 2020. In 2018, the 'linear reduction factor' of the cap was revised, to 2.2% every year from 2021.[125] As noted before, the number of allowances allocated for free is reduced over time. These elements are assessed Infra, 'price level'.

To address the distributional impacts resulting from auctioning in the power sector, a transitional period was introduced for certain Member States (Article 10c), in order to give them time to modernise their power sector and diversify their energy mix.[126] This concerned Member States that heavily rely on coal, such as Poland. The use of transitional periods is positive from the perspective of social-developmental fairness but is detrimental to the environmental effectiveness and economic efficiency of the scheme.

Revenue recycling – The transitional period mentioned above was replaced by a dedicated fund (Modernisation Fund).[127] In addition, the use of revenues from the EU-ETS by Member States has been addressed. The Directive requires that Member States use at least 50 percent of the revenues arising from auctioning for projects related to climate mitigation or adaptation and social measures.[128] Revenues can also be used for projects in developing countries party to the UNFCCC and to international energy and climate funds.[129]

Furthermore, a share of auctioned allowances (10 percent) has been kept aside for some Member States, for the purpose of solidarity and growth.[130] This means that additional revenues would accrue to less wealthy Member States as well as to those having to adapt more to climate change.[131] Another share of 2% of auctioned allowance is attributed to Member States, with a view to rewarding early efforts.[132]

While revenue recycling can be positive with respect to all the dimensions analysed, limiting the compulsory redistribution to 50% may appear insufficient. This is reinforced by the fact that the Directive gives significant freedom to Member States to decide how to use the revenues collected. Nevertheless, this also allows them to take their circumstances into account, and in particular adapt their policies to the perceived fairness and acceptability factors in their own context, which can be considered positive.

Table 6. Fairness dimensions in the Aviation & Revised ETS Directive

	Environmental	Economic efficiency	Social/ developmental	Competitiveness
Scope	+/-	+/-	+/-	+/-
Price level	+/-	+/-	-	+
Phase-in	-	-	+	+
Revenue recycling	+/- Yes but limited and MS discretion			

6. THE FIT FOR 55 PACKAGE

On 14 July 2021, the Commission released a set of legislative proposals, known as the Fit for 55 Package. This Package implements the European Green Deal, alongside other proposals for reform including the Circular Economy Action Plan, the Biodiversity Strategy for 2030 and the Farm to Fork strategy.[133] The more ambitious targets, first endorsed politically and then laid down in the European Climate Law, of reducing net GHG emissions by at least 55% by 2030 and attaining climate neutrality by 2050, have made it necessary to adapt the existing legislative framework. This means revising existing regulatory strategies such as the renewable energy directive and adopting new ones.

The Fit for 55 Package gives a key role to economic instruments, through three key proposals: the revision of the ETD, of the EU-ETS and the adoption of the EU carbon border adjustment mechanism (EU-CBAM).[134] These proposals are currently pending. The European Parliament and the Council have adopted their position on the revision of the EU-ETS and on the EU-CBAM, but not yet on the revision of the ETD. The Parliament's position generally seeks to strengthen these schemes, while the Council's position tends to water down their ambition.[135] They have entered into a trilogue, which is the last phase before the proposals can be enacted.

A part of civil society has questioned whether the Fit for 55 Package is truly delivering a socially fair and climate ambitious EU Green Deal.[136] At the same time, Russia's invasion of Ukraine is putting pressure on the successful adoption of this Package. It has been used by certain industries and lobby groups to delay action and justify the status quo.[137] This makes it particularly relevant to study the Fit for 55 Package from the point of view of fairness and acceptability.

6.1 The revision of the ETD

General context & objectives – The Fit for 55 Package aims to revise the ETD (Directive 2003/96/EC). This Directive sets harmonised rules with respect to taxes levied on energy products used mainly for heat and transport purposes.[138] It establishes minimum tax rates, determines compulsory and facultative derogations and together with the general arrangement directives sets a common structure of the taxes covered. It was adopted almost simultaneously with the ETS Directive.

The ETD has been repeatedly criticised for having negative impacts on the environment,[139] despite the recitals of the Directive underscoring that "The taxation of energy products and, where appropriate, electricity is one of the instruments available for achieving the Kyoto Protocol objectives".[140]

It was also considered outdated to ensure the proper functioning of the internal market. The reform aims to ensure that "the taxation of motor and heating fuels reflects better the impact they have on the environment and health".[141]

The proposal aims (1) to move towards a tax framework based on the calorific content and environmental performance of energy products, (2) to remove fossil fuel subsidies and (3) to provide for an appropriate tax treatment for renewable energies. Many stakeholders agree that the ETD needs to be revised, both to reduce environmental harm and ensure free trade and fair competition in the EU. Nevertheless, Poland has threatened to block the adoption of the proposal, which requires unanimity, and Czech Republic has expressed its concerns with respect to its social impacts.[142]

Scope – The proposal largely husbands the scope of the ETD, which applies to energy products mainly used for transport and heating purposes. It expands the tax arrangements to commercial aviation and shipping, which so far were exempted from energy taxes.[143] This concerns both intra- and extra-EU navigation. However, the taxation of aviation fuel applies "without prejudice of international agreements".[144] In addition, Member States may decide to maintain the exemption with respect to extra-EU navigation (both air and maritime).

The remaining limitations to the scope of the ETD are negative from the perspective of environmental effectiveness, economic efficiency and social/developmental fairness. In addition, the Commission does not explicitly justify these derogations, which can affect the procedural fairness of the scheme.

Price level – The proposal intends to revise the tax base according to two criteria: the calorific content of energy products and their environmental performance. By contrast, it maintains the use of minimum tax rates prevailing in the ETD. It also keeps on differentiating between motor fuels, heating fuels and electricity, which is based on competition as well as to provide for lower tax rates in favour of transport fuels used for the purposes set out by Article 8(2) of the ETD, such as agriculture.[145]

The term 'environmental performance' is vaguely defined. The proposal merely mentions the relationship between this concept and other EU policies under the European Green Deal, including other proposals of the Fit for 55 Package. Based on this criterion, the proposal categorises energy products as follows: fossil fuels; "less harmful" fossil fuels that still have "some potential to contribute to decarbonisation in the short and medium term"; sustainable but not advanced biofuels; and renewable energy (imposed at the lowest rate).[146]

Table 7. Fairness dimensions in the Proposal of revision of the Energy Taxation Directive

	Environmental	Economic efficiency	Social/ developmental	Competitiveness
Scope	+	+	+/-	+
Price level	+/-	+/-	+/-	+/-
Phase-in	-	-	+	+
Revenue recycling	Unaddressed			

Another change proposed is the removal of a wide range of derogations allowed by the ETD, namely the distinction between commercial and non-commercial gas and oil and business and non-business use of heating fuels and electricity,[147] as well as other facultative derogations such as the possibility to apply a level of taxation down to zero for energy products used for certain purposes (e.g. agricultural works) and to differentiate rates of energy products used by local public passenger transport (including taxis).[148] By contrast, the proposal maintains the facultative derogation in favour of charitable households for a limited period of time.[149]

By choosing not to differentiate energy taxes solely on the basis of GHG emissions, the proposal does not make for the most effective design to mitigate climate change. It should be noted, however, that effectiveness of the reform must be assessed by also looking at complementary policies (e.g. the revision of the EU-ETS). The use of minimum rates and the remaining facultative derogations are negative from the perspective of economic efficiency, environmental effectiveness and competitiveness but they represent an improvement compared to the existing regime. By contrast, they can be considered as positive as regards social/developmental fairness because they enable us to take into account the disparities across Member States and support low-income households.

The expected impact of the reform will largely vary across EU countries.[150] The reform will impact more of those Member States that make extensive use of facultative exemptions and deductions as well as those currently having tax rates below the new minima. Concretely, this latter category concerns mainly Member States with a lower GDP, which goes against social/developmental fairness. Among the different energy products, coal is the most impacted by the reform, affecting the more coal-dependent countries such as Poland.

Phase-in – The revision of the minimum tax rates is conceived in two steps: the first one being in 2023 and the second in 2033.[151] The taxation of commercial aviation and shipping is accompanied by a gradual phase-in.

Revenue recycling – The proposal does not provide for common provisions on the use of revenues from the energy taxes covered by the ETD. The explanatory memorandum merely specifies that "It is up to Member States to decide on the use of tax revenues and they can further ensure fairness by using those revenues to mitigate the social impact".[152]

6.2 The revision of the EU-ETS

General context – In addition to the revision of the ETD, the Commission has proposed to revise the EU-ETS.[153] The purpose is to increase the effectiveness and efficiency of this scheme, while adapting it to the EU's new climate ambitions, deriving from the European Climate Law.

Scope – The Commission proposes to broaden the scope of the EU-ETS to new sectors: buildings, road transport and maritime transport. [154] The Parliament proposes to also include the sector of municipal waste from 2026. The sectors of buildings, road transport and maritime transport have been covered so far by the Climate Effort Sharing Regulation (Regulation 2018/842). It was decided that these sectors should remain within the scope of Regulation 2018/842, even though this regulation distributes emission reduction efforts among Member States based on other criteria than the EU-ETS.[155]

The inclusion of new sectors in the EU-ETS is positive from the perspective of environmental effectiveness and economic efficiency. In the absence of such a change, it was feared that GHG emissions would not be sufficiently reduced.[156] The increased ambition of the EU-ETS was generally welcomed by stakeholders, even though some of them consider that the EU could do more.[157]

While the inclusion of the maritime sector was positively received, the inclusion of the transport and building sectors received more mixed opinions, based on the fear of negative social impacts.[158] Without additional measures, the integration of these sectors into the EU-ETS is indeed expected to have regressive impacts and affect Member States in different ways.[159]

Price level – The proposal aims to increase the emission cap and improve the functioning of the market stability reserve.[160] To achieve emissions reductions from ETS sectors by 61% by 2030, as pledged by the EU, the Commission has proposed to raise the linear emissions reduction factor from 2.2% per year to 4.2%.[161] The Parliament has proposed to bring that level to 4.4% in 2024 and 2025, and then to 4.5% from 2026 and to 4.6% from 2029, so as to decrease emissions from ETS sectors by 63% by 2030.[162] Furthermore, the benchmarks to distribute free allowances are updated to "deliver a fairer and more transparent distribution of free allocation".[163]

As regards the maritime sector, the proposal differentiates between different categories of trips. It fully regulates emissions from intra- EU voyages and emissions occurring at berth in an EU port and half of the emissions from extra-EU voyages.[164] The approach followed responds to the objective of fulfilling the EU's international obligations deriving from the principle of 'Common but Differentiated Responsibilities and Capabilities', under the UNFCCC.[165]

The sectors of buildings and road transport are not integrated directly into the EU-ETS but are subject to an adjacent system (ETSII).[166] The cap is set separately and allowances are sold on a different market. This option was the most popular among stakeholders.[167] While the application of a separate system limits the possibility for abating emissions at a lower cost, it can help guarantee the overall effectiveness of the EU-ETS in other sectors. As the proposal specifies, the aim is to "avoid any disturbance of the well-functioning emissions trading system for stationary installations and aviation".[168] To the extent that these rules lead to a lower carbon price, they may also reduce the possible regressive impacts of the scheme on households.

Phase-in – The inclusion of the sectors of road transport and buildings will take place from 2026 as proposed by the Commission or from 2024 as proposed by the Parliament. By contrast, emissions from shipping activities will be covered from 2023 but the proposal provides for a transition period during which shipping companies must submit permits for an increasing share of emissions (from 20% in 2023 to 100% in 2026).[169]

Revenue recycling – Member States have to use all revenue (compared to 50% previously) from auctioning ETS allowances that are not attributed to the EU budget (see Box 2) for climate action, including to support households' sustainable renovations. The proposal encourages the use of auction revenues for social support measures but leaves Member States the discretion to decide what share of revenue should be used to support low-income households.

The Fit for 55 Package increasingly relies on funding mechanisms (Box 2). The percentage of auctioning revenue to be allocated to the Modernisation Fund is increased and changes are made to more specifically target Member States with a lower GDP than the EU average. In addition, the Commission has introduced a separate proposal to create a Social Climate Fund. The parliament has proposed to establish a dedicated fund ("the Ocean Fund"), mainly funded by auctioning maritime allowances.

Table 8. Multi-dimension analysis of the Proposal of revision of the EU-ETS

	Environmental	Economic efficiency	Social/ developmental	Competitiveness
Scope	++	++	+/-	+
Price level	+	+	+/-	+/-
Phase-in	-	-	+	+
Revenue recycling	Extensively addressed			

Box 2. Funding mechanisms

The overall fairness and acceptability of the Fit for 55 Package is strongly tied to revenue recycling. In this context, the Commission has proposed to revise funding mechanisms established at the EU level. These changes concern two existing funds (the Innovation Fund and the Modernisation Fund) and the proposal for introducing a new fund: the Social Climate Fund. The Parliament has also proposed to establish an Ocean Fund.

The Innovation Fund – The Commission has proposed to revise the Innovation Fund, which was established by Article 10a(8) of the ETS Directive. Changes include an increase in the size and scope of the fund. New resources from the auctioning of allowances in the road transport and building sectors (150 million) will be dedicated to the Innovation Fund.[199] In addition, extra auctioned allowances resulting from the introduction of the EU-CBAM will accrue to that fund as well.[200] In parallel, innovation projects that are financed by the Innovation Fund are extended to road transport, building and maritime sectors.

The Modernisation Fund – The Modernisation Fund was established by Articles 10 and 10d of the ETS Directive. Its role has been to support investments in modernising the power sector and energy systems, enhancing energy efficiency, and facilitating a just transition in coal-dependent regions in the Member States with a lower GDP. The proposal increases the share of revenue from auctioning that will be transferred to Member States with a GDP per capita below 65% of the EU average in 2016-2018.[201] It also disallows support for fossil fuel investments in general (as opposed to solid fossil fuels previously).[202]

The Social Climate Fund – In addition to existing funds, the Commission has proposed to institute a new fund: the Social Climate Fund.[203] The purpose of the fund is "to alleviate the social and distributional burden from the price impacts of the emissions trading for the sectors of buildings and road transport, and to facilitate clean investments to mitigate that burden".[204] The amount available corresponds to 25% of the expected revenues from the auctioning of allowances within the ETS for buildings and road transport.

The use of revenue from the Social Climate Fund is linked to the requirement upon Member States to establish a Social Climate Plan.[205] This fund will provide financial support to Member States with respect to measures and investments set out in their plans. Payment is conditional upon achieving the milestones and targets set out in the Plans.[206]

Annex I of the proposal sets out the methodology to distribute financial allocation among Member States. It takes into account the following variables: population at risk of poverty living in rural areas, CO2 emissions from fuel combustion by households, the percentage of households at risk of poverty, total population, the Member State's GNI per capita (purchasing power standard, the share of reference emissions).

Overall assessment – The high reliance of the Fit for 55 Package on revenue redistribution to ensure the acceptability and fairness of the reform requires sufficiently strong funding mechanisms. In this regard, the European Economic and Social Committee (EECS) has expressed doubts regarding the capability of the Social Climate Fund to provide sufficient financial support to responsibly face the socioeconomic effects of the carbon pricing proposed.[207]

The financing of the Fund will depend on the revenues from the EU-ETS, with highly volatile prices. In addition, the EECS has criticised the formula of revenue distribution among Member States for not sufficiently taking into account inequalities within and between EU countries. A final issue is that accompanying measures will be implemented by Member States. If the measures in question are inadequate to address the social and/or economic and competitiveness impacts of the EU-ETS or if they are delayed, the (perceived) fairness, equity and acceptability of the EU-ETS could be endangered.

6.3 The Introduction of the EU-CBAM

General context & objectives – The third carbon pricing scheme included in the Fit for 55 Package is the EU-CBAM.[170] The EU-CBAM is adjacent to the EU-ETS. It is presented as "an essential element of the EU toolbox to meet the objective of a climate-neutral EU by 2050". It aims to address the risk of carbon leakage that results from the absence of a global carbon price.[171] It seeks to strengthen the EU-ETS, by gradually removing free allowances granted to installations at risk of carbon leakage in the EU-ETS. Free allowances within the EU-ETS will be removed insofar as emissions are covered by the EU-CBAM.

Scope – The EU-CBAM applies to imports (as opposed to exports) of selected goods, which are also covered by the EU-ETS. These include cement, electricity, fertilisers, iron and steel, and aluminium.[172] The Commission intends to follow a 'prudent stepwise approach', which is similar to the approach endorsed in the case of the EU-ETS.[173] The products covered by the EU-CBAM are selected based on their GHG emission levels and the risk of carbon leakage in the EU-ETS sectors, so as to limit complexity and administrative burden.

The EU-CBAM applies only to direct emissions of GHGs (those resulting "from the production processes of goods over which the producer has direct control"), as opposed to indirect ones, such as emissions from the production of electricity or heating consumed in the production process or in the whole value chain.[174] To calculate embedded emissions, a combination of actual emissions and default method is used.[175]

The limitation of the scope to a selected list of goods, as well as the exclusion of exports and indirect emissions, means it is not the most environmentally effective and economically efficient design. These design options could also harm fair competition to the extent that products in competition are regulated in different ways. However, these limitations enable a reduced impact on third countries, which can be seen as positive from the perspective of social-developmental fairness.

Table 9. Multi-dimension analysis of the EU-CBAM Proposal

	Environmental	Economic efficiency	Social/ developmental	Competitiveness
Scope	+/-	+/-	+/-	+/-
Price level	+	+	--	+
Phase-in	-	-	+	+
Revenue recycling	Unaddressed			

CONCLUSION AND POLICY RECOMMENDATIONS

CONCLUSION AND POLICY RECOMMENDATIONS

This study has provided insight into the interplay between the efficiency and the effectiveness of economic regulations to address environmental problems and fairness, equity and acceptability. It has used EU climate change mitigation as a case study, focusing both on measures effectively implemented and on the recent proposals contained in the Fit for 55 Package. The perceived fairness, equity and acceptability of environmental policies is of central importance in practice, as they influence the success of these policies.

Economic regulations are often criticised for being unfair and/or inequitable, facing resistance in practice. However, we have seen in the first part of the study that these measures can be effective in addressing environmental problems while being fair, equitable and acceptable. Much depends on how the strategy in question is designed. Whether a measure should be viewed as fair, equitable and/or acceptable is also dependent on how these concepts are understood. Their perception is subjective and as such depend on contextual particularities.

On the one hand, reducing environmental harm can be understood as fair, because the distribution of environmental degradation is uneven. Pollution may affect those who have not contributed to the problem, including future generations, and those who have limited capacities to address it.

On the other side, the distributive impacts of environmental policies differ among citizens/sectors/countries, because they are in different situations. Some of them may have less abatement options, while others have a limited financial capacity. Therefore, environmental policies, including economic regulations, generate distributional impacts.

We have also emphasised that fairness is not only a question of (re)distribution; the policy-making process also needs to be fair. Transparency, clear comunication and stakeholder engagement play a key role in defining the (perceived) fairness and acceptability of a measure.

In the second part of this study, we have analysed the evolution of the EU-ETS over time (Sections 4-5), and the proposals made by the Commission in the context of the Fit for 55 Package (Section 6). We have provided a multi-dimensional analysis, by scrutinising the design of these measures in light of the following dimensions of fairness: environmental effectiveness, economic efficiency, social-developmental, competitiveness.

We have found that over time, the design of the EU-ETS has been increasingly environmentally effective and economically efficient. We have also seen that this change has been accompanied by greater use of revenue recycling options, even though ex ante design options have continued to be used, such as the limitation of the scope, exemptions/reductions and phase-in.

In spite of this, EU climate legislation is currently not adequate to deliver the targets laid down in the European Climate Law, namely attaining climate neutrality by 2050 and reducing net GHG emission by 55% in 2030. This makes the successful adoption of the legislative proposals contained in the Fit for 55 Package decisive for the future of EU climate change mitigation policy. The measures adopted will have to be sufficiently ambitious to deliver the necessary changes needed to attain these targets.

Against this backdrop, we make the following recommendations:

Recommendation 1 – A proper debate on what fairness means in the context of the EU is necessary. This term is used on multiple occasions by the EU, including by the EU Green Deal and by the European Climate Law but remains undefined. EU institutions tend to attribute to this term different meanings depending on the situation (e.g. social fairness or fair competition). There is a need for a real discussion on whether revenue recycling can be considered fair in the EU context. Fairness in the context of EU climate policy used to be associated with differentiation among Member States based on GDP.

This is still the case as the Effort Sharing Regulation will remain in force. In this respect, the overlap between this regulation and the EU-ETS seems questionable given that these legislative instruments embed different visions of fairness, distributing emission reduction efforts in different ways (one based on abatement costs and the other mainly on the basis of GDP).

Recommendation 2 – Under the Fit for 55 Package, guaranteeing fairness and acceptability is highly dependent on revenue recycling and in particular funding mechanisms. This interdependence puts the success of carbon pricing mechanisms at risk. If for some reason the proposals related to funding are postponed, watered down or appear insufficient, the proposed revision of the EU-ETS and of the ETD could suffer. Some have already cast doubt on the capability of the Social Climate Fund to adequately address the possible negative impacts of the proposal on households. Therefore, making these proposals more convincing could help increase the success of carbon pricing in the EU. This is especially the case as regards the inclusion of the sectors of buildings and transport in the EU-ETS, which has left many stakeholders sceptical, and in light of the context of increased energy prices.

Recommendation 3 – The Fit for 55 Package maintains considerable differences in treatment between emitters. Some of these differences result from the limited coverage of a scheme (e.g. separation between installations covered by the EU-ETS and by the IED), while others appear within a given scheme (e.g. between sectors in the EU-ETS). Furthermore, emissions from certain sectors remain largely addressed, e.g. agriculture. These differences in treatment may pose a question from the point of view of fairness and acceptability, insofar as they can be viewed as arbitrary or unjustified. It is not unusual that the EU does not adequately justify these differences (e.g. derogations for cargo, exclusion from waste from the EU-ETS), which is contrary to the procedural dimension of fairness. This also raises questions with respect to compliance with the principle of equality. Therefore, EU climate law and policy would gain from being more systematic and transparent as to why it applies differentiated rules to certain emissions sources.

Recommendation 4 – There is no consistent way in which the EU addresses the fairness and acceptability of carbon pricing mechanisms. Sometimes it is through revenue recycling, sometimes through phase-in or relief. For instance, the distributional impacts of the inclusion of buildings in the EU-ETS are addressed via revenue recycling and a gradual phase-in while in the case of the revised ETD, the proposal allows Member States to introduce tax relief. Here again, there Is a lack of transparency behind the choice of one approach over another. Being more transparent and systematic could help increase the perceived fairness and acceptability of the reforms.

Recommendation 5 – We find that conditioning the phasing out of free allocations in the EU-ETS upon the phase-in of the EU-CBAM is highly critical for several reasons. Firstly, the EU does not address the possible negative impacts resulting from the EU-CBAM on third countries. Secondly, third countries have the right to have less ambitious climate policies than the EU, based on the principle of sustainable development and of CBRC. Furthermore, the ambition of such policies cannot be evaluated solely based on the carbon price level. Therefore, even if the EU was using the revenue collected for compensating third countries, which it does not, the EU-CBAM would still be criticisable. Thirdly, the EU-CBAM will only start operating in 2026 with a gradual phase-in for 10 years. This means that free allowances to firms at risk of carbon leakage will not start decreasing before 2026. This is criticisable from the viewpoint of environmental effectiveness. Ultimately, the volatility of allowance prices in the EU-ETS prevents predictability for foreign firms, which could impact these firms and well as trade with the EU negatively. This also makes the impact on third countries hard to predict.

Recommendation 6 – Climate and energy policies are intertwined and as such are hard to discuss separately. The capability of the EU to address the current energy crisis will likely impact the success of the Fit for 55 Package. In this regard, the volatility of energy prices coupled with the volatility of ETS allowance prices seems problematic. In our view, both issues should be discussed jointly and an effective response to price rises of energy should be implemented both in the short and longer term.

ENDNOTES

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